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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,257

07/24/2006

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58603US004

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32692

7590

07/21/2011

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EXAMINER

WALTERS, RYAN J

ART UNIT

PAPER NUMBER

3726

NOTIFICATION DATE

DELIVERY MODE

07/21/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 38-40 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**Claim 38** recites “the insulation material is a non-intumescent insulation material”. However, the only non-intumescent insulation material described in the specification contains a mat made of high alumina polycrystalline ceramic fibers (page 20, Comparative Example 4). Claim 19 already recites the slurry is formed of magnesium aluminum silicate glass fibers and therefore this limitation is unclear and considered to be new matter.

**Claim 39** recites “mixing water, a binder and chopped magnesium aluminum silicate glass fibers to form a slurry of non-intumescent insulation material”. However, the only non-intumescent insulation material described in the specification contains a mat made of high alumina polycrystalline ceramic fibers (page 20, Comparative Example 4). This limitation is therefore unclear and considered to be new matter.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 38-40 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. **Claim 38** recites “the insulation material is a non-intumescent insulation material”. However, the only non-intumescent insulation material described in the specification contains a mat made of high alumina polycrystalline ceramic fibers (page 20, Comparative Example 4). Claim 19 already recites the slurry is formed of magnesium aluminum silicate glass fibers and therefore this limitation is unclear.

6. **Claim 39** recites “mixing water, a binder and chopped magnesium aluminum silicate glass fibers to form a slurry of non-intumescent insulation material”. However, the only non-intumescent insulation material described in the specification contains a mat made of high alumina polycrystalline ceramic fibers (page 20, Comparative Example 4). This limitation is therefore unclear.

***Claim Rejections - 35 USC § 102***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. **Claims 19 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Langer (US 5,869,010).**

9. Re **Claim 19**, Langer discloses a method of making a molded preform for use in an exhaust system component of an exhaust system of an internal combustion engine, the exhaust system component comprising two opposing metal walls defining a gap

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therebetween, with the molded preform being disposed in the gap, and a space through which exhaust gas may flow when the exhaust system component is used in an exhaust system of an internal combustion engine,

said method comprising:

mixing water, a binder and chopped magnesium aluminum silicate glass fibers (Col. 5, lines 48-67) to form a slurry of insulation material (Col. 6, lines 49-56; Col. 5, lines 48-67; Col. 10, Example 1; Col. 4, lines 50-65);

providing a mold constructed to form the molded preform comprising the insulation material and being dimensioned so as to be positionable within the gap between the two opposing walls of the exhaust system component, with the mold having a screen through which water from the slurry is removed (Col. 6, lines 49-56; Col. 10, Example 1; Figs. 1-2); and

processing the slurry to form the molded preform, said processing comprising disposing the slurry into the mold and removing the water from the slurry through the screen so as to form the molded preform (Col. 6, lines 49-56; Col. 10, Example 1; Figs. 1-2).

Note that the limitation "for use in an exhaust system component of an exhaust system of an internal combustion engine, the exhaust system component comprising two opposing metal walls defining a gap therebetween, with the molded preform being disposed in the gap, and a space through which exhaust gas may flow when the exhaust system component is used in an exhaust system of an internal combustion engine" are intended use recitations. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the

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prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458,459 (CCCPA 1963).

The recitation of "for use in an exhaust system component of an exhaust system of an internal combustion engine, the exhaust system component comprising two opposing metal walls defining a gap therebetween, with the molded preform being disposed in the gap, and a space through which exhaust gas may flow when the exhaust system component is used in an exhaust system of an internal combustion engine" is considered functional language. Langer discloses all the structural components of the device and all of the steps of making it, which read on those of the instant invention. Therefore, the method of Langer is deemed capable of performing the same desired functions as the instant invention as claimed in claim 1.

10. Re **Claim 30**, Langer discloses the removal of the water through the screen forms the molded preform into a tubular shape suitable for use in a double-walled exhaust pipe of an exhaust system (Figs. 1-2).

**11. Claims 19-21, 23 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Rogers (US 5,290,522) (with reference to Langer (US 5,869,010)).**

12. Re **Claim 19**, Rogers discloses a method of making a molded preform for use in an exhaust system component of an exhaust system of an internal combustion engine, the exhaust system component comprising two opposing metal walls defining a gap

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therebetween, with the molded preform being disposed in the gap, and a space through which exhaust gas may flow when the exhaust system component is used in an exhaust system of an internal combustion engine,

said method comprising:

mixing water, a binder and chopped magnesium aluminum silicate glass fibers to form a slurry of insulation material

providing a mold constructed to form the molded preform comprising the insulation material and being dimensioned so as to be positionable within the gap between the two opposing walls of the exhaust system component; and

processing the slurry to form the molded preform (Col. 7, Example 2);

Although Rogers is silent to the mold comprising a screen and removing water from the slurry through the screen, this is believed to be inherent since Rogers discloses using a conventional paper making machine (Col. 7, lines 45-46) and since **Langer** teaches that traditional papermaking techniques include pouring the slurry onto a screen to remove the water (Col. 6, lines 50-56).

Note that the limitation "for use in an exhaust system component of an exhaust system of an internal combustion engine, the exhaust system component comprising two opposing metal walls defining a gap therebetween, with the molded preform being disposed in the gap, and a space through which exhaust gas may flow when the exhaust system component is used in an exhaust system of an internal combustion engine" are intended use recitations. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the

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prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458,459 (CCCPA 1963).

The recitation of "for use in an exhaust system component of an exhaust system of an internal combustion engine, the exhaust system component comprising two opposing metal walls defining a gap therebetween, with the molded preform being disposed in the gap, and a space through which exhaust gas may flow when the exhaust system component is used in an exhaust system of an internal combustion engine" is considered functional language. Langer discloses all the structural components of the device and all of the steps of making it, which read on those of the instant invention. Therefore, the method of Langer is capable of performing the same desired functions as the instant invention as claimed in claim 1.

13. Re **Claims 20-21**, Rogers discloses chopping magnesium aluminum silicate glass fibers, for use in the slurry, to an average length in the range of from greater than about 0.3 cm to less than 3 cm and a length in the range of from about 0.5 cm to about 15 cm (Col. 7, Example 2).

14. Re **Claim 23**, Rogers discloses said insulation material is comprised of at least 90% by weight of said aluminum silicate glass fibers (Claim 13).

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15. Re **Claim 30**, Rogers/Langer disclose the removal of the water through the screen forms the molded preform into a tubular shape suitable for use in a double-walled exhaust pipe of an exhaust system (Fig. 1).

***Claim Rejections - 35 USC § 103***

16. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**17. Claims 20-21, 23 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langer (US 5,869,010) in view of Rogers (US 5,290,522).**

18. Re **Claims 20-21**, Langer discloses chopping magnesium aluminum silicate glass fibers, for use in the slurry, the aluminum silicate glass fibers have a number average diameter of 5 .micrometer or more (Col. 5, lines 48-67). Langer does not explicitly teach chopping them to an average length in the range of from greater than about 0.3 cm to less than 3 cm and a length in the range of from about 0.5 cm to about 15 cm.

However, **Rogers** teaches chopping magnesium aluminum silicate glass fibers, for use in the slurry, to an average length in the range of from greater than about 0.3 cm to less than 3 cm and a length in the range of from about 0.5 cm to about 15 cm (Col. 7, Example 2). It would be obvious to one of ordinary skill in the art to have the lengths, as taught by Rogers, for the purpose of ensuring the fibers are sized appropriately for the mat and to ensure they will form the desired configuration.

19. Re **Claim 23**, Langer does not explicitly disclose said insulation material is comprised of at least 90% by weight of said magnesium aluminum silicate glass fibers.

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However, **Rogers** teaches said insulation material is comprised of at least 90% by weight of said magnesium aluminum silicate glass fibers (Claim 13).

It would be obvious to one of ordinary skill in the art to have the material composition, as taught by Rogers, for the purpose of utilizing an optimal strength mat.

20. Re **Claim 25**, Langer discloses the slurry further comprises organic binder material and one or more plasticizers (Col. 5, line 40).

21. Re **Claim 26**, Langer discloses the slurry further comprises inorganic binder material (Col. 2, line 33; Col. 4, line 5).

**22. Claims 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langer (US 5,869,010) or Rogers in further view of Langer '059 (US 5,523,059).**

23. Re **Claim 24**, Langer does not disclose the slurry further comprises organic binder material in an amount up to about 10 weight percent based on the weight of the insulation material.

However, **Langer '059** teaches the slurry further comprises organic binder material in an amount up to about 10 weight percent based on the weight of the insulation material (Col. 4, lines 66-67).

It would be obvious to one of ordinary skill in the art to have the material composition, as taught by Langer '059, for the purpose of creating an optimal strength mat and customizing the flexibility and moldability of the composition and adjusting the viscosity of the material.

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24. Re **Claim 27**, Langer does not disclose the slurry further comprises an inorganic colloidal material, and said method further comprises: forming the inorganic colloidal material in the slurry in the presence of magnesium aluminum silicate glass fibers.

However, **Langer '059** teaches the slurry further comprises an inorganic colloidal material, and said method further comprises: forming the inorganic colloidal material in the slurry (Col. 4, lines 5-10).

It would be obvious to one of ordinary skill in the art to have the material composition, as taught by Langer '059, for the purpose of creating an optimal strength mat and customizing the flexibility and resiliency of the composition (Col. 4, lines 5-10).

25. **Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Langer (US 5,869,010) or Rogers in view of Langer '059 (US 5,523,059), as applied to claim 27, in further view of Honma (US 6,436,598).**

26. Re **Claim 28**, Langer does not disclose the inorganic colloid material is formed by adding two or more water soluble precursors to the slurry that combine to form a metal hydroxide.

However, **Honma** teaches obtaining an inorganic colloid material by adding two or more water soluble precursors to form a metal hydroxide (Col. 12, lines 40-67).

It would be obvious to one of ordinary skill in the art to form the colloid material, as taught by Honma, for the purpose of having a desired particle distribution.

27. **Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Langer (US 5,869,010) or Rogers in further view of Shirk (WO 98/50688).**

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28. Re **Claim 31**, Langer discloses the removal of the water through the screen forms the molded preform which has dimensions suitable for being inserted into and insulating an end cone region of a pollution control device (Figs. 1-2). Langer does not explicitly disclose the molded preform is an end cone preform having a three dimensional conical shape, and the molded end cone preform maintains its three dimensional conical shape under the force of gravity after having been formed.

However, **Shirk** teaches a molded preform is an end cone preform having a three dimensional conical shape, and the molded end cone preform maintains its three dimensional conical shape under the force of gravity after having been formed (Fig. 1; Pgs. 11-14). It would be obvious to form a conical shape, as taught by Shirk, since this is a known method and also to form a desired geometry so that the preform can be used in a catalytic converter.

29. **Claims 19 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirk (WO 98/50688) in view of Langer (US 5,869,010).**

30. Re **Claim 19**, Shirk discloses a method of making a molded preform for use in an exhaust system component of an exhaust system of an internal combustion engine, the exhaust system component comprising two opposing metal walls defining a gap therebetween, with the molded preform being disposed in the gap, and a space through which exhaust gas may flow when the exhaust system component is used in an exhaust system of an internal combustion engine (Fig. 1; Pgs. 11-12),  
said method comprising:

mixing water, a binder and alumina silica glass fibers to form a slurry of insulation

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material (Pg. 9-10, 14);

providing a mold constructed to form the molded preform comprising the insulation material and being dimensioned so as to be positionable within the gap between the two opposing walls of the exhaust system component, wherein water from the slurry is removed (Fig. 1; Pg. 11-12, 14); and

processing the slurry to form the molded preform, said processing comprising disposing the slurry into the mold and removing the water from the slurry so as to form the molded preform (Pg. 11-12, 14).

Shirk discloses using conventional paper making techniques (Pg. 10) and removing water from the mold (Page 14) but does not explicitly disclose using chopped magnesium aluminum silicate glass fibers or the mold having a screen and water from the slurry is removed through the screen of the mold.

However, **Langer** teaches mixing water, a binder and chopped magnesium aluminum silicate glass fibers (Col. 5, lines 48-67) to form a slurry of insulation material (Col. 6, lines 49-56; Col. 5, lines 48-67; Col. 10, Example 1; Col. 4, lines 50-65); and using a mold having a screen through which water from the slurry is removed (Col. 6, lines 49-56; Col. 10, lines 50-55, Example 1; Figs. 1-2). It would be obvious to one of ordinary skill in the art to utilize this composition and a mold having a screen, as taught by Langer, for the purpose of utilizing an optimally strengthened material for improved performance in a catalytic converter and since Langer teaches that traditional papermaking techniques include pouring the slurry onto a screen to remove the water

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(Col. 6, lines 50-56) and in order to properly and effectively dewater the material and minimize settling of the particulates (Col. 10, lines 50-55).

31. Re **Claim 30**, Shirk/Langer disclose the removal of the water through the screen forms the molded preform into a tubular shape suitable for use in a double-walled exhaust pipe of an exhaust system (Fig. 1).

32. Re **Claim 31**, Shirk/Langer discloses the removal of the water through the screen forms the molded preform into an end cone preform having a three dimensional conical shape dimensions suitable for being inserted into and insulating an end cone region of a pollution control device and the molded end cone preform maintains its three dimensional conical shape under the force of gravity after having been formed (Fig. 1; Pgs. 11-14).

33. **Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Langer (US 5,869,010) (or Rogers or Shirk/Langer) in further view of TenEyck (US 6,231,818).**

34. Re **Claim 38**, Langer (or Rogers or Shirk/Langer) does not disclose using chopped magnesium aluminum silicate glass fibers to form a slurry of non-intumescent insulation material.

However, **TenEyck** teaches mixing water, a binder and chopped magnesium aluminum silicate glass fibers to form a slurry of non-intumescent insulation material for forming a preform for a catalytic converter (Col. 7, lines 1-40, Col. 4, lines 44+; Abstract). It would be obvious to one of ordinary skill in the art to utilize this composition, as taught by TenEyck, for the purpose of attaining a mat that can function throughout an

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average temperature range from ambient up to at least 350 degrees Celsius while maintaining a holding force of at least 15 psi in exhaust treatment devices and is sufficiently thin and flexible (Col. 5, lines 40-50).

**35. Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirk (WO 98/50688) in view of TenEyck (US 6,231,818) and Langer (US 5,869,010).**

36. Re **Claim 39**, Shirk discloses a method of making a molded end cone preform dimensioned for use in an end cone region of a pollution control device comprising a cone shaped inner housing and a cone shaped outer housing defining a gap therebetween, with the molded end cone preform being disposed in the gap (Fig. 1; Pgs. 11-12), said method comprising:

mixing water, a binder and alumina silica glass fibers to form a slurry of non-intumescent insulation material (Pg. 9-10, 14);

providing a mold constructed to form a molded preform comprising the insulation material and being dimensioned so as to be positionable within the gap between the inner and outer cone shaped housings of the pollution control device, wherein water from the slurry is removed (Fig. 1; Pg. 11-12, 14); and

disposing the slurry into the mold and removing the water from the slurry so as to form the molded end cone preform (Pg. 11-12, 14)

wherein the slurry comprises organic binder material in an amount up to about 10 weight percent based on the weight of the non-intumescent insulation material (Pgs. 17, 19).

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Shirk does not explicitly disclose using chopped magnesium aluminum silicate glass fibers to form a slurry of non-intumescent insulation material.

However, **TenEyck** teaches mixing water, a binder and chopped magnesium aluminum silicate glass fibers to form a slurry of non-intumescent insulation material for forming a preform for a catalytic converter (Col. 7, lines 1-40, Col. 4, lines 44+; Abstract). It would be obvious to one of ordinary skill in the art to utilize this composition, as taught by TenEyck, for the purpose of attaining a mat that can function throughout an average temperature range from ambient up to at least 350 degrees Celsius while maintaining a holding force of at least 15 psi in exhaust treatment devices and is sufficiently thin and flexible (Col. 5, lines 40-50).

Shirk discloses using conventional paper making techniques (Pg. 10) and removing water from the mold (Page 14) but does not explicitly disclose the mold having a screen and water from the slurry is removed through the screen of the mold.

However, **Langer** teaches a mold having a screen through which water from the slurry is removed (Col. 6, lines 49-56; Col. 10, lines 50-55, Example 1; Figs. 1-2). It would be obvious to one of ordinary skill in the art to utilize a mold having a screen, as taught by Langer, since Langer teaches that traditional papermaking techniques include pouring the slurry onto a screen to remove the water (Col. 6, lines 50-56) and in order to properly and effectively dewater the material and minimize settling of the particulates (Col. 10, lines 50-55).

***Response to Arguments***

37. Applicant's arguments with respect to claims 19-40 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

38. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN J. WALTERS whose telephone number is (571)270-5429. The examiner can normally be reached on Monday-Friday, 9am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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